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AUTHOR Matthews, Kenneth M.
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ABSTRACT

Academic performance appears to be influenced by the combined effects of at least seven important variables: 1) inherited capacity to learn, 2) learning experiences, 3) external resources, 4) attitude toward teachers, 5) perceptions of teacher expectations and values, 6) perceptions of the future utility of schooling, and 7) self-concept of ability. While there seems little need to measure the first variable because it cannot be altered and the next two must be measured in relation to the unique goals of particular schools, the other four variables can be assessed using a broadly applicable instrument, the Student Achievement Diagnostic Questionnaire (SADQ). The SADQ allows student perceptions of teachers, schooling, and themselves to be measured and compared by school, grade level, and discipline, revealing strengths and weaknesses in individual programs. Basic strategies for improving student perceptions in areas where they are negative can then be applied by individual teachers in order to enhance students' academic performance. (Author/PGD)

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IMPROVING ACADEMIC PERFORMANCE

Kenneth M. Matthews
G-10 Aderhold Hall
The University of Georgia
Athens, Georgia 30602
(404)542-3343

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IMPROVING ACADEMIC PERFORMANCE

Kenneth M. Matthews

Educators are experiencing tremendous pressures in the area of academic performance. Yet, research has not indicated clear direction for strategies to improve pupil achievement. Part of the inconsistency in research findings can be attributed to the simplistic design of most studies. There appears to be a strong tendency for many researchers to focus on one or two variables with inadequate consideration of other factors affecting academic performance. The implications of this tendency may be serious. Evidence available in the literature gives reason to suspect that the interactive effects of several variables may be more important than the unique effect of any single variable. If interactive effects are critical, then plans to improve academic performance should consider the potential interactive effects among those variables influencing academic performance.

Variables Affecting Performance[1]

Support can be found in the literature for seven variables influencing academic performance. These seven variables are: (1) inherited

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[1]A review of literature and a discussion of complex relations among these variables and their potential effects on academic peformance is presented in "A Conceptual Model for Improving Academic Performance" by this author. (Submitted for publication.) An earlier discussion was presented by Kenneth M. Matthews and Carvin L. Brown in "Schooling and Learning - The Principal's Influence on Student Achievement." The NASSP Bulletin, Vol. 60, No. 402 (October 1976) pp. 1-15.

capacity to learn, (2) learning experiences, (3) external resources, (4) attitude toward teachers, (5) perceptions of teacher expectations and values, (6) perceptions of the future utility of schooling, and (7) self-concept of ability. Inherited capacity to learn and learning experiences determine the ability of pupils. External resources enable them to perform the same task more efficiently or to perform more tasks with the same effort. The four remaining variables affect the effort of pupils to achieve in school.

The attitudes of pupils toward their teachers and their perceptions of teacher expectations and values determine, to a large degree, the effect teachers have on the desire of pupils to achieve. Pupils tend to exert more effort for teachers when they have positive attitudes toward those teachers. If pupils have negative attitudes toward their teachers, teachers will have little, if any, positive effect on the desire of pupils to learn.

Pupils who perceive schooling as having great utility in their future lives tend to have high levels of desire to achieve in school. Those who believe the experiences they have in school will be of little benefit in their future lives tend to have little desire to be successful academically.

Pupil self-concepts of ability to perform in school have a tremendous effect on the effort they put forth to achieve. If pupils believe they have little chance of being successful, they tend to exert little effort to achieve in school. But, if pupils believe they can be successful they may exert high levels of effort.

Even though each of the seven factors discussed above may make a unique contribution to academic performance, an examination of the potential interactive effects illustrates the inherent weakness of strategies to improve academic performance which do not take into consideration multiple variables.

Interactive Effects

Of the seven variables presented, only one cannot be influenced by schooling experiences. Inherited capacity to learn is an important factor, but it cannot be altered by experience. However, the inherited potential of pupils influences the extent schooling can affect academic performance. Educators may structure curricular experiences extremely well and still be relatively ineffective with the grossly deficient child.

The schooling variable having the greatest immediate impact on academic performance is experience provided by school. Given an adequate potential to benefit from experience and appropriate instruction, pupils can obtain sufficient ability to achieve academically. But, even if pupils have the ability they will not be successful unless they have the necessary resources and exert sufficient effort to perform.

Given appropriate resources, pupils can learn more efficiently and perform more effectively. However, external resources which do not facilitate learning of the skills and concepts measured will not result in higher academic performance. In fact, inappropriate resources may actually be detrimental to academic performance even if the external resources are of high quality. An example of how this

can occur is when vocational facilities and equipment of high quality are provided and performance is measured by tests focusing on the content normally found in the traditional academic courses.

Pupil attitudes toward teachers are considerd to affect their desire to work for their teachers. But, pupils may have very positive attitudes toward teachers and still exert little effort to achieve in school if they believe their teachers expect them to do little. Conversely, teachers may hold high expectations for performance and have little, if any, positive effect on the effort of pupils to achieve in school if pupils have extremely negative attitudes toward their teachers.

Pupils who perceive schooling as being of high value in their future lives tend to do well in school. However, even if pupils believe schooling to be extremely important and exert high levels of effort, they may still exhibit low levels of academic performance if the skills and concepts measured are not taught. On the other hand, if the skills and concepts measured are perceived as being of little value, then their desire to learn these skills and concepts may be low.

The self-concepts of ability pupils hold serve to limit or enhance academic performance. If pupils have positive self-concepts of ability, they may exert high levels of effort to achieve in school when they also want to achieve. However, positive self-concepts may be of little benefit when pupils have little desire to achieve.

As the preceding discussion illustrates, the task of improving academic performance is extremely complex. There are no quick ways

of producing high levels of academic performance. The best evidence available indicates teachers will have the greatest positive effect on academic performance when they:

(1) use strategies appropriate to the inherited capacities of their pupils,

(2) teach the skills and concepts to be measured,

(3) use external resources which facilitate learning of the skills and concepts to be measured,

(4) work with pupils in such a way that pupils have positive attitudes toward them,

(5) demonstrate to pupils they expect high levels of performance and value knowledge of their academic disciplines highly,

(6) demonstrate the future utility of the skills and concepts taught, and

(7) facilitate the development of positive self-concepts of ability in their pupils.

If the above hypothesis is accepted, then the implications for educational leaders are profound. When resources are limited, as they are in education, decision-makers are best advised to allocate their discretionary resources judiously. To assist in this process, strategies for assessing needs are considered highly desirable, if not essential.

Need Assessment

Curricular content analysis and evaluation of the appropriateness of external resources can only be done with reference to the unique goals of individual institutions. Therefore, diagnosis of needs in these areas can best be performed by personnel within individual schools. The other four variables affected by schooling experiences

can be assessed through administration of instruments which have utility broader than individual schools.

An instrument has been developed for the purpose of assisting educational leaders to assess four motivational states in their pupils.[2] The "Student Achievement Diagnostic Questionnaire" (SADQ) was designed to provide measures of: (1) pupil self-concepts of ability in English, mathematics, science, and social studies; (2) pupil attitudes toward English, mathematics, science, and social studies teachers; (3) pupil perceptions of the expectations and values of English, mathematics, science, and social studies teachers; and (4) pupil perceptions of the future utility of English, mathematics, science, and social studies.

During the 1976-1977 school year, the SADQ was administered to 1,391 pupils enrolled in Georgia public schools. After revision, the final version of the SADQ was administered during the 1977-1978 school year to 2,304 fourth through twelfth grade pupils in six schools. The odd-even reliability estimates for this administration ranged from .8066 for responses to mathematics questions to .9363 for responses to all questions on the instrument.

Diagnosis Among Disciplines

Because the SADQ presents the same questions for each of the four major academic disciplines, direct comparisons can be made between the response scores for the four disciplines. For example, the data in

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[2]Kenneth M. Matthews and Carvin L. Brown. "The Student Achievement Diagnostic Questionnaire." Athens, Georgia: By the Authors, 1977.

Table I for grade eight in two sample schools indicate distinctly different patterns of mean responses. In School A, pupil responses indicate English as the discipline in need of greatest improvement, whereas in School B, the most deficient discipline is social studies.

Table I

Diagnosis Among Disciplines[3]

School	Number of Cases	Total SADQ	English SADQ	Math SADQ	Science SADQ	Social Studies SADQ
A	190	5.492	5.195*	5.898	5.607	5.463
B	203	5.476	5.718	5.443	5.630	5.118*

*Note: English responses in School A and Social Studies responses in School B were lower than the responses for each of the other disciplines in the respective schools at the .05 level of statistical significance.

Diagnosis Within Disciplines

When the mean responses to the questions for the four motivational variables for grade eight in Schools A and B were examined, different motivational variables were found to be deficient for the two disciplines. (See Tables II and III). In School A, pupil responses indicate deficiencies in attitude toward the English teacher and perceptions of the English teachers' expectations and values. In School B, deficiencies were found for social studies in the areas of pupil perceptions of the future utility of social studies and perceptions of the social studies teachers' expectations.

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[3]The SADQ uses and Osgood Semantic Differential format with responses for each item numbered from 1 to 7 with 1 representing the least positive and 7 the most positive response.

Table II

Diagnosis Within Disciplines for School A

Variable	English	Math	Science	Social Studies
Self-Concept of Ability	5.059	5.368	5.216	5.026
Attitude Toward Teacher	4.973*	5.977	5.791	5.553
Future Utility	5.339	5.967	5.214	5.109
Teacher Expectations and Values	5.385*	6.188	6.277	6.112

*Note: Mean responses for pupil attitudes toward their English teacher and perceptions of the English teacher's expectations were lower than their responses for each of the other disciplines at the .05 level of statistical significance.

Table III

Diagnosis Within Disciplines for School B

Variable	English	Math	Science	Social Studies
Self-Concept of Ability	5.454	5.043	5.503	5.172
Attitude Toward Teacher	5.828	5.251	5.718	5.159
Future Utility	5.445	5.807	5.169	4.911*
Teacher Expectations and Values	5.975	5.836	6.055	5.389*

*Note: Mean responses for pupil perceptions of the future utility of Social Studies and perceptions of the Social Studies teachers expectations were lower than their scores for each of the other disciplines at the .05 level of statistical significance. Scores for pupil attitudes toward the Social Studies teacher were also lower, but the differences across all disciplines were not statistically significant.

Direction for Improvement

As the data above indicate, differences in motivational states may exist among academic disciplines within grades within schools and among the four motivational variables within disciplines. Diagnosis of these differences may be accomplished through the use of the SADQ. Once diagnosis has been made the difficult task of developing specific strategies for improving academic performance still lies ahead. Perhaps, the most effective plan would be to select the strategies considered most appropriate for reducing discrepancies, to use discretionary resources to implement the strategies selected, and monitor the status of each of the four variables. To assist in the generation of specific strategies, the suggestions below are offered.

Self-Concept of Ability

Self-concepts of ability are developed through experience. Successful experiences tend to foster more positive self-concepts. Failures tend to create more negative self-concepts. Guidelines which teachers may find useful are:

(1) structure instructional units so pupils have a high probability of success,

(2) provide psychological rewards when pupils are successful, and

(3) emphasize progress when assisting pupils to correct mistakes.

Attitudes Toward Teachers

There is no secret to creating positive pupil attitudes toward teachers. Children tend to have positive attitudes toward the same

kinds of people adults like. Pupils will tend to have positive attitudes toward teachers when teachers:

(1) are friendly, cheerful, and helpful;

(2) are positive; and

(3) frequently initiate interaction with pupils outside of the classroom.

Future Utility

Pupil perceptions of the future utility of schooling is probably the most difficult of the four motivational variables to change. Strategies which may prove to be beneficial are:

(1) demonstrate relationships between classroom experiences and life outside of school,

(2) solicit testimonials from individuals having credibility with pupils about the benefits of schooling, and

(3) help pupils to use the skills and concepts they have learned in dealing with problems in their personal lives.

Teacher Expectations

Pupil perceptions of teacher expectations and values are most likely a relatively accurate picture of what teachers actually believe. Pupil perceptions of teacher expectations and values may be high when teachers:

(1) insure that each pupil learns something in their class each day,

(2) use the time available teaching, and

(3) demonstrate concern for the progress of each pupil.

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